https://doi.org/10.37420/j.ssp.2024.005

A Bibliometric analysis of Cuteness Research Based on Wos Database

Xiaowen Hu*

School of management, Northwest Minzu University, Lanzhou,China

***Corresponding author,E-mail:296079144@qq.com**

Abstract

Cuteness is a widely studied phenomenon that transcends various disciplines, including biology, sociology, political science, aesthetics, marketing, consumer behavior, and psychology. Through bibliometric analysis, 193 relevant literature sources were identified in the Wos database, with 10 clusters of keywords across different fields. These keywords can be categorized into 5 areas including baby schema and its factors/impact on perception, animal welfare, artificial intelligence, cognitive appraisal theory, and aesthetic preferences. This demonstrates that cuteness is a multidisciplinary research topic that encompasses a diverse range of fields, from its biological foundations to its social and cultural influences.

Keyword

cuteness, *Bibliometric analysis*, *baby schema, Interdisciplinary*

1.Introduction

Cute elements or “kawaii” can be seen everywhere in people’s daily production and life. For example, in popular culture, entertainment, leisure, including dining, clothing, toys, festivals, and local symbols, cute designs are prevalent and rapidly sweeping the nation. For instance, WWF uses the black and white cute giant panda as its logo; Hello Kitty, with over 50,000 products, is present in more than 130 countries and regions(Chinadaily, 2014). Other typical representatives include Mickey Mouse and teddy bears (H. Lee & Yan, 2020). Lilly Pulitzer integrated cute designs into clothing and accessories, achieving a sales revenue of $122 million in 2012 (Lee & Hsieh, 2019). Videos of cute little ducks from Disney parks garnered 27 million views and 360,000 likes; the Palace Museum’s cute pictures and souvenir series have attracted over 1.6 billion visits to its official online store(Ye et al., 2023). Although cute culture is considered one of the primary subcultures in East Asia, particularly Japan, products for children and adults in both Western and Eastern cultures often feature cute characteristics. For example, some U.S. insurance companies, lotteries, casino chips, and slot machines are designed in a cute manner (Li & Yan, 2021). Driven by social media, the visual culture surrounding cuteness has evolved into a massive “cute economy” (Maddox, 2021; Meese, 2014) and has become a public relations tool to showcase national efficiency in response to health and safety crises (Wong et al., 2021). From international organizations to the fonts on a food packaging bag, it can be said that cuteness has permeated all aspects of people’s lives (Ngai, 2022).

Although cuteness is intricately linked to contemporary life and has even transformed contemporary subjectivities (Dale, 2016), spanning disciplines such as biology, sociology, political science, aesthetics, marketing, and consumer behavior, research on cuteness remains under explored. There is still ample room for exploration in

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

defining the concept of cuteness, its dimensions, influencing factors, and its socio-economic effects (Nenkov & Scott, 2014). Therefore, it is necessary to conduct a literature review to revisit relevant research on cuteness in order to facilitate further in-depth studies.

2.Research Design

2.1Methodology

In light of the rapid expansion of available information, bibliometric methods have become a valuable tool for analyzing large volumes of unstructured data in a systematic and rigorous way. These methods are crucial for processing and uncovering the underlying structures within vast amounts of scientific data. By utilizing objective analysis, bibliometrics can help researchers decode and identify subtle shifts in the accumulation and development of knowledge within established fields. This enables scholars to gain a comprehensive understanding, pinpoint areas of knowledge gaps, generate new research ideas, and assess the potential contributions to the field. As a result, this article has chosen to utilize practical bibliometric methods to conduct a thorough review of the literature(Donthu et al., 2021).CiteSpace is a popular tool used for visualizing and analyzing bibliometric networks in scientific research. It offers features such as co-author analysis, co-word analysis, co-citation analysis, and burst detection(Chen, 2006; Díez-Martín et al., 2021). By offering insights into the knowledge structure and evolution of a research field, co-citation and burst analysis can inform research strategies, help identify potential collaborators, and guide the development of research agendas.

2.2 Data collection

This study is based on the research framework and data query method proposed by Huang et al. (2023). The study utilized the criteria of “continuity” and “Kawaii” to explore relevant research in the Social Science Citation Index (SSCI) of WOS databases, which are renowned for their reliability and reputation(Galvagno & Dalli, 2014). Following manual review of 221 articles on August 25, 2022 (first query) and March 20, 2024 (second query), duplicates were eliminated, leaving a total of 193 articles.

3.Data Analysis

3.1descriptive analysis

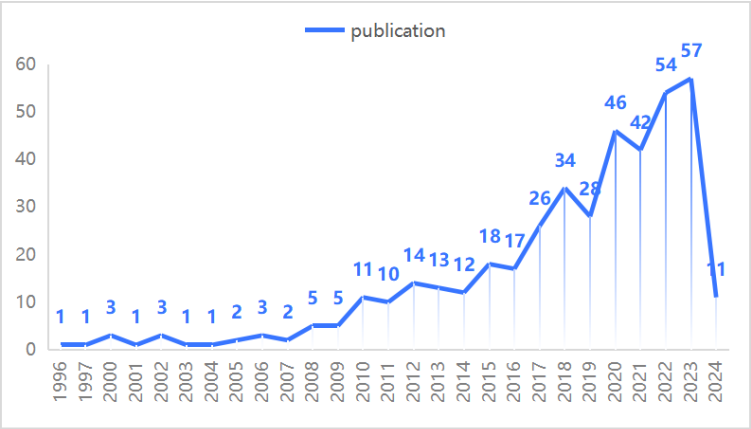


Figure1 publication of cuteness in WoS

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

https://doi.org/10.37420/j.ssp.2024.005

The data from WoS revealed 27 years of published articles, with a noticeable absence of articles from 1998 to 1999 in the database. The publication trend can be segmented into three stages: the exploration stage from 1996 to 2009, the growth stage from 2010 to 2016, and the ongoing rapid growth stage starting from 2017.

3.1.1 statistics of public areas

A total of 49 countries have conducted research on cuteness, with an average of 11.3 articles published. Nine countries have exceeded this average in their research on cuteness. Notably, SCOTLAND and NETHERLANDS have emerged as significant contributors in this field, with their sudden contributions in 2009-2016 and 2017-2018, respectively.

Table1 Top 10 of cuteness research published in Wos

									Label	Author	Year	Half-life
1	111	0			22	0.63	1	0	USA	USA	2000	18.5
2	101	0			14	0.36	1	0	JAPAN	JAPAN	2006	13.5
3	63	0			7	0.03	1	0	PEOPLES R CHINA	PEOPLES R CHINA	2011	9.5
4	35	0			16	0.24	1	0	ENGLAND	ENGLAND	2003	15.5
5	21	0			9	0.14	1	0	AUSTRALIA	AUSTRALIA	2008	11.5
6	19	0			10	0.05	1	0	GERMANY	GERMANY	2009	9.5
7	17	4.08	2017	2018	6	0.08	1.36	0	NETHERLANDS	NETHERLANDS	2013	4.5
8	17	0			4	0	1	0	CANADA	CANADA	2002	15.5
9	12	4.87	2009	2016	5	0.01	1.04	0	SCOTLAND	SCOTLAND	2009	3.5
10	11	0			3	0.02	1	0	THAILAND	THAILAND	2012	6.5

3.1.3 statistics of co-cited journals

With a total of 758 articles published in journals being cited, each article received an average of 7.5 citations. Additionally, 50 co-cited journals have sudden monitoring data, with an average value of 4.6.

Table2 Top 10 of cuteness co-cited journal published in Wos

rank	Freq	Burst	BurstBegin	BurstEnd	Degree	Centrality	Sigma	PageRank	co-cited journal	Year	Half-life
1	106	8.79	2006	2015	74	0	1	0	Developmental Psychology	1997	19.5
2	17	7.32	1997	2016	43	0	1	0	Merrill-Palmer Quarterly	1997	14.5
3	33	6.94	2016	2021	45	0	1	0	Cognition and Emotion	2006	13.5
4	19	6.6	2022	2024	34	0	1	0	Journal of Consumer Psychology	2022	0.5
5	28	6.29	2011	2018	54	0	1	0	NeuroImage	2011	5.5
6	12	6.19	2010	2016	28	0	1	0	Neuron	2010	4.5
7	25	6.02	2014	2018	39	0	1	0	Social Neuroscience	2014	3.5
8	24	6	2021	2024	32	0	1	0	Journal of Consumer Psychology	2021	0.5
9	43	5.92	2022	2024	50	0	1	0	Journal of Business Research	2016	5.5
10	22	5.5	2021	2024	27	0	1	0	Research Journal of Public Policy Mark	2021	0.5

3.2Scholarly collaboration

There are a total of 975 co-cited authors, with an average frequency of 4.2 citations. Out of these authors, 136 are above the average. Within this group, 38 cited authors made sudden contributions.

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

https://doi.org/10.37420/j.ssp.2024.005

Table3 Top 10 of cuteness co-cited authors published in Wos

Rank	Freq	Burst	BurstBegin	BurstEnd	Degree	Author	Year	Title
1	55	8.72	2021	2024	49	NENKOV GY	2016	Using consumer responsibility remainders to reduce cuteness-induced indulgent consumption
2	81	8.18	2010	2016	73	SPRENGELMEYER R	2010	Female and male responses to cuteness, age and emotion in infant faces
3	20	7.96	2022	2024	24	LV XY	2022	Is cuteness irresistible? The impact of cuteness on customers? intentions to use AI applications
4	98	7.01	2020	2024	34	NITTONO H	2013	The Power of Kawaii: Viewing Cute Images Promotes a Careful Behavior and Narrows Attentional Focus
5	16	6.79	2022	2024	16	SHIN J	2022	Customer Nontransactional Value Cocreation in an Online Hotel Brand Community: Driving Motivation, Engagement Behavior, and Value Beneficiary
6	50	6.72	2009	2018	81	LANGLOIS JH	2001	□Maxims or myths of beauty? A meta-analytic and theoretical review.
7	14	6.16	2013	2018	37	YAMAMOTO R	2013	Aesthetic and Incentive Salience of Cute Infant Faces: Studies of Observer Sex, Oral Contraception and Menstrual Cycle
8	57	5.86	2011	2016	73	LOBMAIER JS	2011	Female and male responses to cuteness, age and emotion in infant faces
9	25	5.64	2021	2024	37	WANG TT	2017	Getting Consumers to Recycle "NOW"! When and Why Cuteness Appeals Influence Prosocial and Sustainable Behavior
10	43	4.84	2014	2020	62	HAHN AC	2014	Aesthetic and Incentive Salience of Cute Infant Faces: Studies of Observer Sex, Oral Contraception and Menstrual Cycle

The concept of cuteness has been shown to have various effects on human behavior and decision-making. One study found that cute cues can enhance attention and engagement in tasks, leading to pro-social responses. This “aww effect” can also benefit non-cute objects by increasing consumer engagement in pro-social initiatives.

Additionally, the study identified “Kindchenschema cuteness” as a factor that can trigger proactive engagement in protective behaviors.Another study explored gender differences in perceiving and discriminating cuteness, specifically in infants. It was found that women are better at identifying cute cues in babies, which may be linked to evolutionary mechanisms for caring for offspring. Furthermore, research examined how the cuteness of AI applications affects customer willingness to use them for different types of tasks. Customers were more inclined to use highly cute AI applications for emotional tasks, while preferring less cute applications for knowledge-based tasks.Lastly, a study investigated the impact of reproductive hormone status on the perception of infant facial aesthetics and motivational value. It was found that hormone status does not regulate these factors.

Overall, these studies provide valuable insights into the influence of cuteness on behavior and decision-making across various fields such as psychology, consumer behavior, biology, and sociology, as well as the role of gender differences in this process.

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

https://doi.org/10.37420/j.ssp.2024.005

3.3Keyword Analysis

There are 422 keywords in total, with an average frequency of 2.9.85 keywords appear above 3. The head shape in 2009 and consumers in 2020 are the only two sudden keywords.

Table4 Top 10 of keywords related to cuteness in Wos

rank	Freq	Burst	BurstBegin	BurstEnd	Degree	Centrality	Sigma	PageRank	Label	Author	Year
1	84	0			86	0.15	1	0	baby schema		2007
2	66	0			84	0.17	1	0	perception		2003
3	62	0			88	0.15	1	0	cuteness		2010
4	29	0			79	0.16	1	0	attractiveness		2002
5	27	0			53	0.04	1	0	faces		2005
6	26	0			66	0.12	1	0	behavior		2010
7	23	0			50	0.06	1	0	infant		2006
8	22	0			56	0.05	1	0	responses		1997
9	19	0			39	0.03	1	0	adult		2013
10	16	0			40	0.07	1	0	gender		2009
11	15	0			46	0.03	1	0	infant faces		2002
12	15	3.72	2021	2024	20	0.03	1.1	0	consumers		2020
13	14	0			39	0.01	1	0	adults		2012
14	14	0			32	0.02	1	0	attention		2016
15	12	0			49	0.04	1	0	age		1997
16	11	0			41	0.03	1	0	preferences		2009
17	10	0			36	0.03	1	0	evolution		2012
18	10	0			24	0.03	1	0	motivation		2016
19	9	0			37	0.04	1	0	beautiful		2004
20	9	4.72	2009	2014	30	0.02	1.09	0	head shape		2009

The field of cute research encompasses various aspects related to infants, including their physical features, perception, behavior, cognitive development, and adult responses to cuteness. This research also examines gender differences, consumer behavior, evolutionary psychology, and motivation. A key focus is on the attractiveness of infant faces and how this relates to individual behavior, social cognition, and other factors. Studies also investigate how adults' perceptions and reactions to cuteness evolve with age. These categories encompass a wide range of fields including zoology, management, international relations, humanities, information science and library science, rehabilitation, and education, each representing distinct disciplines or fields.

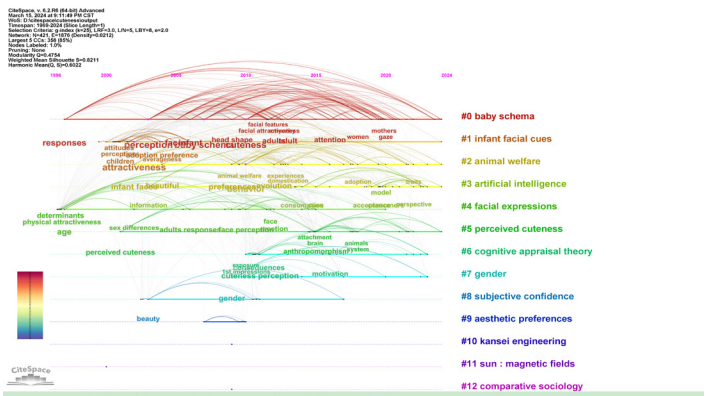


Figure2 timeline of cuteness research

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

Based on timeline anlaysis generated by Citespace,there are 10main clusters:

Cluster 0: The central theme revolves around the concept of 'baby schema' with a significant score of 9.03 and a low centrality value of 0.005. This cluster also includes related terms such as 'infant' with a score of 7.13 and a centrality of 0.01, 'cuteness' at 5.27 with a centrality of 0.05, 'faces' with a similar score, and 'infants' at 4.71 with a centrality of 0.05.

Cluster 1: This group is characterized by 'infant facial cues' leading with a score of 12.92 and an exceptionally low centrality value of 0.001. Other notable terms include 'adoption preference,' 'attitudes,' and 'resemblance,' all sharing the same high score and centrality value. 'Sex differences' is also a significant term in this cluster, with a slightly lower centrality value of 0.005.

Cluster 2: Focusing on 'adult animal welfare' with the highest score of 11.59 and a centrality of 0.001, this cluster also encompasses 'domestication' and 'infant features' with slightly lower scores but the same centrality value. 'Companion animals' and 'morphology' are also key terms, each with a score of 7.4 and a centrality of 0.01.

Cluster 4: Here, 'artificial intelligence' stands out with a score of 10.22 and a centrality value of 0.005. The term 'edible insects' is intriguingly paired with 'service robots,' sharing the same score and centrality. 'Cool and cuteness' and 'brand warmth' are also linked, each with a score of 5.09 and a centrality of 0.05.

Cluster 5: perceived cuteness is 5.57;aesthetic preference is 5.4;canine is5.4,;cleft lip 5.4;striatum is5.4.

Cluster 6: 'Cognitive appraisal theory' leads this cluster with a score of 11.68 and a centrality value of 0.001. 'Cuteness perception' follows closely with a score of 9.59 and the same centrality. 'Size,' 'reaction time,' and 'hotel guests' are terms with lower scores but significant within this cluster, each at 5.82 with a centrality of 0.05.

Cluster 7: 'Gender' is the central term with a high score of 12.07 and a centrality of 0.001. 'Sound symbolism' is another key term with a score of 11.87. 'Bilabials' and 'sexism' are included with lower scores and centrality values of 5.91 and 0.05, respectively.

Cluster 8: 'Subjective confidence' is the focal point with a score of 7.23 and a centrality of 0.01. 'Trustworthiness,' 'typography,' and 'heuristic information processing' are all associated terms with the same score and centrality. 'Upside down faces' is a unique term in this cluster, with a lower score of 4.51 and a centrality of 0.05.

Cluster 9: Aesthetic preferences are highlighted with a score of 10.36 and a centrality of 0.005. 'Same-sex faces' and 'beauty labels' are closely related terms with identical scores and centrality values. 'Attractiveness judgments' and 'visual attention' are also significant within this cluster, each with a score of 10.36 and a centrality of 0.005, while 'visual attention' has a slightly lower centrality value of 0.01.

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

https://doi.org/10.37420/j.ssp.2024.005

3.4Major co-citation bursts

There were a total of 768 articles cited, with an average of 2.7.39 articles experiencing a burst.The articles on cuteness can be categorized into five main themes. The first category focuses on research regarding infant facial features and how they influence adult perception and care motivation. The second category explores differences in male and female responses to cuteness. The third category examines the impact of cuteness on behavior, including behavioral priming effects and attention focus. The fourth category delves into the relationship between cuteness and emotions, including humanization and dehumanization effects. The final category looks at cuteness from a cultural perspective. This classification provides a better understanding of research on perceived cuteness, gender differences, behavioral influences, and cultural perspectives.

In general, these clusters demonstrate that cuteness is a complex research subject that spans various disciplines, from biological underpinnings to societal and cultural factors.

4.Discussion and conclusion

Over the past 27 years, research on cuteness has experienced three stages of development: exploration, growth, and rapid expansion. This indicates a growing interest in the field, particularly since 2017. A total of 49 countries have contributed to cuteness research, with Scotland and the Netherlands showing significant growth in their contributions during certain time periods. This suggests a focus and investment in this area of study by these countries. In terms of academic journals and authors, “Developmental Psychology” and “Merrill Palmer Quarterly” have published a large number of related articles, while authors such as Nenkov and Sprengelmeyer have made significant contributions to the field. Keyword analysis indicates that the central concepts in this field are “baby schema”, “perception”, and “cuteness”. These keywords highlight the primary areas of research, such as infant facial features, perception, and cuteness as a concept.

Cuteness research has transitioned from an emerging field to a well-established area of study, attracting researchers and funding from across the globe. This research involves collaboration between various disciplines such as psychology, biology, and sociology, highlighting the significance of interdisciplinary cooperation in addressing complex scientific questions. The focus of cuteness research has broadened over time, moving beyond fundamental biological and psychological issues to include practical applications in areas like marketing, product design, and cultural studies. Gender differences in the perception and response to cuteness continue to be a key area of investigation, with attention paid to how biological and socio-cultural factors may influence these differences. Additionally, the impact of cultural variations on cuteness research underscores the importance of considering diverse cultural backgrounds in understanding and applying the concept of cuteness.

5.Conclusion and future research agenda

Future research may further delve into the impact of cuteness on human behavior and social interactions, while also investigating how cuteness can be integrated and interpreted in the realm of emerging technologies like AI and robotics. This bibliometric analysis piece offers a valuable insight into the past, present, and future of cuteness research, shedding light on prominent scholars, publications, and areas of study within this field.

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)

Funding

[1]Innovation and Entrepreneurship Education Reform Project in Gansu Province(No.2022SJCXCY-JGXM03)

[2]The Fundamental Research Funds for the Central Universities(No31920240034)

References

[1]Chen, C. (2006). CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. Journal of the American Society for Information Science and Technology, 57(3), 359–377. https://doi.org/10.1002/asi.20317

[2]Dale, J. P. (2016). Cute studies: An emerging field. East Asian Journal of Popular Culture, 2(1), 5–13. https://doi.org/10.1386/eapc.2.1.5_2

[3]Díez-Martín, F., Blanco-González, A., & Prado-Román, C. (2021). The intellectual structure of organizational legitimacy research: A co-citation analysis in business journals. Review of Managerial Science, 15(4), 1007–1043. https://doi.org/10.1007/s11846-020-00380-6

[4]Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. Journal of Business Research, 133, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

[5]Galvagno, M., & Dalli, D. (2014). Theory of value co-creation: A systematic literature review. Managing Service Quality, 24(6), 643–683. https://doi.org/10.1108/MSQ-09-2013-0187

[6]Hello Kitty at 40: How she conquered the world? Retrieved 24 March 2024, from https://language.chinadaily.com.cn/news/2014-08/21/content_18463304.htm

[7]Lee, C. T., & Hsieh, S. H. (2019). Engaging consumers in mobile instant messaging: The role of cute branded emoticons. Journal of Product and Brand Management, 28(7), 849–863. https://doi.org/10.1108/JPBM-08-2018-1997

[8]Li, Y., & Yan, D. (2021). Cuteness inspires men's risk seeking but women's risk aversion. Journal of Business Research, 126, 239–249. https://doi.org/10.1016/j.jbusres.2020.12.066

[9]Maddox, J. (2021). The secret life of pet Instagram accounts: Joy, resistance, and commodification in the Internet's cute economy. New Media & Society, 23(11), 3332–3348. https://doi.org/10.1177/1461444820956345

[10]Meese, J. (2014). "It Belongs to the Internet": Animal Images, Attribution Norms and the Politics of Amateur Media Production. M/C Journal, 17(2). https://doi.org/10.5204/mcj.782

[11]Nenkov, G. Y., & Scott, M. L. (2014). 'So Cute I Could Eat It Up': Priming Effects of Cute Products on Indulgent Consumption. Journal of Consumer Research, 41(2), 326–341. https://doi.org/10.1086/676581

[12]Ngai, T. L. (2022). The aesthetics and affects of cuteness. Cultural Studies, 36(1), 165–167. https://doi.org/10.1080/09502386.2020.1809689

[13]Wong, J., Lee, C., Long, V. K., Wu, D., & Jones, G. M. (2021). 'Let's Go, Baby Forklift!': Fandom Governance and the Political Power of Cuteness in China. SOCIAL MEDIA + SOCIETY, 7(2), 20563051211024960. https://doi.org/10.1177/20563051211024960

[14]Ye, B. H., He, J., Fong, L. H. N., Li, Z., & Yan, Y. Q. (2023). How does cuteness become the cue? Investigating the impact of cute destination spokespersons on tourist travel intention. Journal of Destination Marketing & Management, 27, 100758. https://doi.org/10.1016/j.jdmm.2022.100758

© 2024 by the author(s); licensee Mason Publish Group (MPG), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (http://creativecommons.org/licenses/by/4.0/)